CHAPTER 11

SECTION 3 APHIS RESPIRATOR PROGRAM GUIDELINES

11.3.1 PURPOSE

This section provides guidance to APHIS programs in developing and implementing a respiratory protection program. It assists APHIS programs in complying with respiratory protection requirements developed by the Occupational Safety and Health Administration (OSHA); explains responsibilities and guidelines for the proper selection and use of respiratory protection equipment; and the training and medical requirements for users of respirators.

11.3.2 INTRODUCTION

Respirators are used as protection against contaminants where engineering and administrative controls are not feasible. Since respiratory protection is a complicated form of protection, written guidelines are necessary to maintain a comprehensive program. These guidelines follow the program presented in 29 CFR 1910.139 (previously 1910.134), OSHA regulations, concerning respiratory protection.

11.3.3 DEVELOPMENT OF A WRITTEN RESPIRATORY PROTECTION PROGRAM REQUIREMENTS

The minimal OSHA requirements for a respiratory protection program are as follows; each one of these elements must be addressed in a written program plan:

A. Written standard operating procedures governing the selection and use of respirators will be established.

B. Selection of respirators on the basis of hazards to which an employee is exposed.

C. Employee training and instruction in the proper use of respirators and their limitations.

D. Assignment, where practical, of respirators to individual employees for their exclusive use. This is not required, but is recommended by OSHA.

E. Regular cleaning and disinfecting of respirators. Those used by more than one employee will be thoroughly cleaned and disinfected after each use.

F. Storage of respirators in a convenient, clean, and sanitary location.

G. Routine inspection of respirators during cleaning to replace worn or deteriorated parts. Respirators for emergency use, and fumigation, such as a self-contained breathing apparatus (SCBA), will be thoroughly inspected at least once a month and after each use.

H. Appropriate surveillance of work area conditions to measure the degree of employee exposure or stress will be maintained.

I. Regular inspections and evaluations to determine the continued effectiveness of the program.

J. Medical evaluation and clearance is required before performing tasks requiring use of respirators in order to determine that an employee is physically able to do the work and use the equipment. The evaluation must be performed by a physician or licensed health care professional. The respirator user's medical status should be reviewed every two years. The medical evaluation should include, as a minimum, an evaluation to identify pulmonary and cardiovascular impairment. APHIS Form 29 may be used as described in Chapter 7.

K. The use of NIOSH approved respirators (National Institute for Occupational Safety and Health).

11.3.4 ADDITIONAL CRITERIA OF A WRITTEN RESPIRATORY PROTECTION PROGRAM

A. Evaluation of Operations.

The operations for which respiratory protection is considered necessary must be evaluated to determine the following:

1. Whether process modifications, engineering controls (such as ventilation), or selection of alternate materials are feasible so that respirator use is not required,

2. The type and degree of hazard posed by the exposure (nuisance contaminant, acute or chronic toxin, gaseous or particulate material, and airborne concentration), and

3. Whether the need for respiratory equipment is temporary (until process modifications can be made) or whether it will be required as a permanent control measure.

B. Selection of Respiratory Protection Devices.

Respirators must be selected based on the type of hazard to which the employee will be exposed and the limitations of the respirator. All of the following items must be considered to ensure proper respiratory protection:

1. The effectiveness of the device against the contaminant of concern. (Odor and warning properties of the toxic substance, physical, and chemical characteristics).

2. Estimated maximum concentration of the toxic substance in the work area.

3. Potential eye and skin exposures.

4. Frequency of use and period (length of time) of use.

5. Physical conditions of work environment.

6. Comfort, fit, and employee acceptance of the specific respirator.

7. Other potential contaminants in the environment.

8. Oxygen deficiency or conditions immediately dangerous to life and health.

Only respirators approved by NIOSH will be used. Self-contained or supplied-air protective breathing equipment must meet minimum air quality criteria specified for Grade D Type I as stated in American National Standards Institute (ANSI), Z86.1-1973.

C. Employee Training.

Supervision and training of employees selected to wear respiratory protection devices is essential to accomplish the maximum achievable degree of protection. An employee training program should include the following:

1. Discussion of the reasons for using the respirator and the protection to be afforded,

2. Discussion of the contaminants to be encountered, their toxicologic properties, material safety data sheet information, and the probable concentration to be expected,

3 OSHA 29 CFR 1910.139 and the requirements of this Program,

4. Description of the respiratory protection devices, including instructions on checking the proper fit and malfunction,

5. Routine maintenance, cleaning, and inspection procedures,

6. Locations and methods for proper storage of respirators,

7. Actual donning of the equipment, and

8. Fitting instructions and fit testing.

D. Fit Testing.

Once the appropriate respirator has been selected for the hazard involved, proper fit

becomes the most important factor affecting employee protection. Fit testing is essential to the effectiveness of negative pressure respirators, and should be performed on all respirators using tight-fitting facepieces. (This procedure is also recommended for positive pressure respirators using tight-fitting facepieces).

In order to ensure that respirators fit properly the following steps should be taken:

1. Allow the user the opportunity to handle and become familiar with a respirator.

2. Select a respirator facepiece for proper size and comfort using several different sizes and brands of respirators.

3. Test the facepiece to face seal using positive and negative fit check procedures, to ensure there is no gross leakage around the mask. The procedures for the positive and negative fit test are described in the ANSI Publication Z88.2-1992, "Practices for Respiratory Protection," and in NIOSH Publication 76-189, "A Guide to Industrial Respiratory Protection."

4. Have the user wear the respirator in normal air to become familiar with the feel of the respirator and its fit before actual chemical fit testing is performed.

5. Wear the respirator in a test atmosphere. Qualitative fit testing is conducted using a chemical such as irritant smoke or banana oil to determine if the employee can detect an odor inside of the facepiece. Quantitative respirator fit testing (QRFT) is used to measure the actual amount of leakage for a respirator and involves the use of more sophisticated testing equipment and trained operators.

As a minimum, semi-annual qualitative fit testing should be performed for each employee. Records should be maintained for the tests.

Respirators cannot be worn when conditions prevent a good face seal. Conditions to be checked include a beard or sideburns, a skull cap that projects under the facepiece, temple pieces on eyeglasses and the absence of one or both dentures.

To ensure proper protection, the facepiece fit must be checked by the wearer each time the respirator is to be worn. If respiratory protection is required in an environment immediately hazardous to life, qualitative as well as quantitative tests must be conducted to ensure proper fit.

E. Maintenance.

1. Inspection. Respirators used for routine work should be inspected before each use by the wearer and monthly by the unit supervisor. The supervisor will conduct random inspections to ensure that respirators are properly selected,

used, cleaned, and maintained.

Self-contained breathing apparatus should be inspected by the user after each use. A monthly inspection of self-contained breathing units should be conducted.

Inspections should include checking the tightness of connections, the condition of the facepiece, headbands, valves, and rubber or elastic parts. Defective units will not be used.

2. Cleaning. Equipment must be cleaned frequently enough to be free of contamination. Equipment assigned to an employee should be clearly identified with the employee's name or stored in a labeled package.

   The recommended cleaning and disinfectant procedure is to remove filters or cartridges, wash the respirator thoroughly in a disinfectant, rinse in clear warm water, and air dry.

3. Storage. Respirators must be stored in a clean and sanitary location away from damaging chemicals, dust, sunlight, and temperature extremes. Routinely used respirators should be stored in a plastic bag or the original carton. Respirators should be stored so that the facepiece and valves are not distorted or damaged.

F. Medical Requirements.

Employees may not be assigned tasks requiring the use of respirators unless it has been determined that they are physically able to perform the work and wear the respirator. Employees suffering from physical impairments such as pulmonary diseases, cardiovascular impairments, perforated ear drums, or emotional factors such as claustrophobia may not be able to wear a respirator due to the physical and/or psychological stresses created.

Under the provisions of 29 CFR, Part 1910.139, Respiratory Protection, “the employer shall identify a physician or other licensed health care professional to perform medical evaluations using a medical questionnaire or an initial medical examination that obtains the same information as the medical questionnaire.” Appendix C of the standard provides a questionnaire which includes the minimum information which must be obtained.

In accordance with the standard, each APHIS employee must be evaluated before being given a respirator. An employee’s ability to wear a respirator must be determined through an evaluation performed by a physician or licensed health care professional. Too assist physicians and licensed health care professionals in conducting the evaluations, a Respiratory Program Medical Survey Form has been developed and is provided as Exhibit 11.2. Employees who are required to wear a respirator must

complete the questionnaire and obtain approval from a physician or licensed health care professional prior to being given a respirator. The physician must be provided a copy of the completed survey form, the written respiratory program guidelines, and the OSHA respiratory protection standard.

G. Written Standard Operating Procedures.

Written operating procedures should be developed for each operation which:

1. Requires routine use of respiratory protection, and

2. May require use of respiratory protection during an emergency.

These procedures should include information and guidance on the proper selection, use, and care of respirators for each application.

H. Recordkeeping.

Records must be maintained of the medical authorization, fit testing results, type of respirator, and approved users. In addition, records of monthly inspection results for each SCBA will also be maintained.

11.3.5 TYPES OF RESPIRATORS

Two types of respirators presently exist: those that supply air to the user, and those that purify air that passes through the equipment.

A. Atmosphere-supplying respirators provide respirable air from a source other than the surrounding atmosphere. Because these respirators supply breathable air, they may be used in oxygen deficient atmospheres as well as against air contaminants. Four types of atmosphere-supplying respirators presently exist:

1. SCBA.

a. Demand type.

b. Pressure-demand type.

2. Hose-mask with and without blower.

3. Air line.

4. Combination of self-contained and hose-mask or air line.

B. Air-purifying respirators remove contaminants from the air. These do not provide oxygen and, therefore, cannot be used in oxygen-deficient atmospheres. Four types of air-purifying respirators presently exist:

1. Gas and vapor.

2. Particulate.

3. Combination of gas, vapor, and particulate.

4. Powered air-purifying respirators (PAPR).

The two forms of respiratory protection primarily used by APHIS employees are the air-purifying, chemical cartridge respirators and the SCBA. The recommended standard operating procedures for the use of these two forms of respiratory protection are provided in the supplemental sections at the end of this section.

11.3.6 PROGRAM ADMINISTRATION AND RESPONSIBILITY

Costs of the respirator program will be handled as outlined in Section 7.2.8 of this Manual. Proper program administration ensures that all aspects of the respirator program are carried out. The Occupational Medical Monitoring Program Coordinator (OMMPC), as delegated by the senior line manager and referenced in Sections 7.2.3 and 7.2.6, is responsible for establishing and maintaining the respirator program in the field. The OMMPC, with assistance from the appropriate CDSHO and the Safety, Health, and Environmental Staff (SHES) will ensure that:

A. A standard operating procedure is established incorporating, as a minimum, respirator information in accordance with 29 CFR 1910.139 and the APHIS respirator policy. The written program must meet individual requirements within the APHIS programs.

B. Hazards are evaluated.

C. Controls, including engineering and administrative, as well as specific types of respirators, are implemented.

D. The use of respirators is denied if conditions so warrant. (For example, if engineering or administrative controls are feasible, respirators will not be the method of choice.)

E. Work hazard evaluations and evaluations of the program's effectiveness are conducted.

F. Proper records document several aspects of the program. Four main categories of records are necessary and will be maintained in APHIS work locations.

1. Records of respirator program evaluations.

2. Procurement information to reorder respirator components.

3. Maintenance records to provide information on common failures and complaints about equipment malfunction.

4. Training and fitting records to determine the need for refresher courses and refitting of respirators.

G. Respirators are inspected to determine if they are worn and maintained properly.

H. There is a determination of employee acceptance by consultation with respirator users. Discussions should include discomfort; resistance to breathing; fatigue; interference with vision, communication, or job performance; and confidence in the equipment.

11.3.7 EVALUATION OF THE PROGRAM

SHES will:

A. Review written operating procedures and general guidelines to determine if they adequately reflect needs.

B. Review training programs provided to employees.

C. Review adequacy of records.

D. Report findings to the APHIS Administrator.

11.3.8 BIBLIOGRAPHY

The following bibliography is an important part of a respiratory protection program, since these references provide technical information and list the laws associated with respiratory protection:

A. Occupational Safety and Health Administration, 29 CFR 1910.139.

B. "A Guide to Industrial Respiratory Protection," NIOSH #76-189, GPO #017-033-00153-7. Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.

C. "Practices for Respiratory Protection," ANSI Z88.2-1980. American National Standards Institute, Inc., 1430 Broadway, New York, New York 10018.